

This modification is to incorporate information to solicitation W912DQ-04-B-0010 Columbia River Pump Station. SOURCES SOUGHT NOTIFICATION/INFORMATION AS FOLLOWS: PUMPS; SEWAGE AND SLUDGE

2.1.8.3 Controls Each pump shall have the following sensors: a. Motor thermal switches b. Moisture sensor mounted in the stator housing c. A float switch mounted in a normally dry chamber to detect seal leakage d. Lower bearing temperature e. Vibration monitoring to aid in the prevention of pump cavitation 2.1.8.4 System Characteristics 2.2 SUBMERSIBLE CENTRIFUGAL PUMPS Submersible centrifugal pumps shall be electric, submersible type pumps with closed nonclog impellers designed to pump solids up to 5 1/4 inches in diameter and shall be capable of withstanding submergence as required for the particular installation. The pumps shall be designed to operate on a guide rail system. 2.2.1 Pump Characteristics Pump numbers 1 and 2 located in the wetwell shall have the following operating characteristics: a. Pump Service: River water. b. Design Operating Point: 14,000-16,000 gpm flow, 55-65 feet head, 75-85 percent efficiency. c. Maximum Operating Point: 16,000 to 18,000 gpm flow, 45-55 feethead, 70-80 percent efficiency. d. Minimum Operating Point: 9,000 to 11,000 gpm flow, 75-85 feethead, 65-75 percent efficiency. e. Impeller Type: Closed Non-Clogged. f. Operating Speed: 850-900 rpm. g. Depth of Submergence: 36 to 40 feet. h. Motor Type: Squirrel-cage, induction, shell type. i. Electrical Characteristics: 480 volts ac, 3 phase, 60 Hz. j. Size: Within rated load driving pump at specified rpm. k. Pump Control: Variable Frequency Drive (on one of the two pumps). 2.2.2 Pump Casing The casing shall be capable of withstanding operating pressures 50 percent greater than the maximum operating pressures. Pump casings shall be cast iron or equal conforming to ASTM A 48, Class 35B, shall be of single piece design, and shall have smooth fluid passages. 2.2.3 Mating Surfaces Mating surfaces where watertight seal is required, including seal between discharge connection elbow and pump, shall be machined and fitted with metal to metal O-rings. Fitting shall be such that sealing is accomplished by metal-to-metal contact between mating surfaces, resulting in proper compression of the O-rings without the requirement of specific torque limits. 2.2.4 Coatings Exterior surfaces of the casing in contact with sewage shall be protected by a sewage resistant coal tar epoxy coating. All exposed nuts and bolts shall be stainless steel. 2.2.5 Impeller The impeller shall be of the single shrouded non-clogging design to minimize clogging of solids, fibrous materials, heavy sludge, or other materials found in sewage. Impellers shall be gray, cast iron conforming to ASTM A 48, Class 35B. Pumps shall be capable of passing solids up to 5 1/4 inches in diameter. The impeller shall be statically, dynamically, and hydraulically balanced within the operating range and to the first critical speed at 150 percent of the maximum operating speed. The impeller shall be securely keyed to the shaft with a locking arrangement whereby the impeller cannot be loosened by torque from either forward or reverse direction. The impeller shall be nickel coated. 2.2.6 Wearing Rings Wearing rings, when required, shall be renewable type and shall be provided on the impeller and casing and shall have wearing surfaces normal to the axis of rotation. Material for wear rings shall be standard of pump manufacturer. Wearing rings shall be designed for ease of maintenance and shall be adequately secured to prevent rotation. Rubber wear rings will not be acceptable. 2.2.7 Pump Shaft Each pump shall be provided with a drive shaft having a single combined shaft of ASTM A 576, Grade 1045, carbon steel. The shaft shall be protected from the pumped media with a stainless steel sleeve. The pump shaft shall be of adequate size and strength to transmit the full driver horsepower with a liberal safety factor. 2.2.8 Seals A tandem mechanical shaft seal system running in an oil bath shall be provided. Seals shall be of tungsten carbide or equivalent with each interface held in contact by its own spring system. Conventional mechanical seals which require a constant pressure differential to effect sealing will not be allowed. The seals shall require neither maintenance nor adjustment, but shall be easily inspected and replaceable. 2.2.9 Bearings Pump bearings shall be ball or roller type designed to handle all thrust loads in either direction. Pumps depending only on hydraulic balance end thrust will not be acceptable. Bearings shall have an ABEMA L-10 life of 50,000 hours minimum, as specified in ABMA 9 or ABMA 11. If open-type (non-shielded) bearings are used, provide re-lubrication ports with positive anti-leak seals for periodic addition of lubrication from external to the pump. 2.2.10 Motor The pump motor shall have Class F insulation, NEMA B design, in accordance with NEMA MG 1, and shall be watertight. The motor shall be either oil filled, air filled with a water jacket, or air filled with cooling fins which encircles the stator housing. Pump motors shall be squirrel-cage, induction, shell-type design. Each motor shall be totally non-overloading throughout the entire range of the pump curve. 2.2.11 Power Cable The power cable shall comply with NFPA 70, Type SO, and shall be of standard construction for submersible pump applications. The power cable shall enter the pump through a heavy duty entry assembly provided with an internal grommet assembly to prevent leakage. The cable entry junction chamber and motor shall be separated by a stator lead sealing gland or terminal board which shall isolate the motor interior from foreign material gaining access through the pump top. Epoxies, silicones, or other secondary sealing systems are not acceptable. This cable entry design shall then insure that no entry of moisture is possible into the high-voltage motor terminal area, even if the cable is damaged or severed below the water level, to a submerged depth of up to 85 feet. Provide 85 feet of power cable. 2.2.12 Installation Systems 2.2.12.1 Rail Mounted Systems Rail mounted installation systems shall consist of a stainless steel guide rails, a sliding bracket, and a discharge connection elbow. Guide rails shall be of the size and type standard with the manufacturer and shall not support any portion of the weight of the pump. The sliding guide bracket shall be an integral part of the pump unit. The discharge connection elbow shall be permanently installed in the wet well along with the discharge piping. The pump shall be automatically connected to the discharge connection elbow when lowered into place and shall be easily removed for inspection and

service without entering the pump well. Cable or rail mounted installation system shall consist of 316 stainless steel guide cables or rails, a sliding bracket and a discharge elbow, final connection shall insure zero leakage between the pump and discharge connection flange. 2.2.12.2 Bolt Down Systems The pump mount system shall include a base designed to support the weight of the pump. The base shall be capable of withstanding all stresses imposed upon it by vibration, shock, and direct and eccentric loads. 2.2.12.3 Lifting Chain Lifting chain to raise and lower the pump through the limits indicated shall be provided. The chain shall be stainless steel and shall be capable of supporting the pump. 2.3 ELECTRICAL WORK Electrical motor driven equipment specified shall be provided complete with motors, motor starters, and controls. Electric equipment and wiring shall be in accordance with Section 16415A E:\SISGML\JOBS\RUSTY1\prntdata\16415A.sec ELECTRICAL WORK, INTERIOR. Electrical characteristics shall be as specified or indicated. Motor starters shall be provided complete with thermal overload protection and other appurtenances necessary for the motor control specified. Manual or automatic control and protective or signal devices required for the operation specified, and any control wiring required for controls and devices but not shown, shall be provided. 2.4 DESCRIPTIVE LITERATURE Provide descriptive literature, catalogues, pamphlets and other pertinent information regarding the equipment.